

One Step Synthesis of Three-Dimensional Fe, Zn, N-Doped Carbon Foam and Their Application for Water Oxidation Reaction

Bandal Harshad, 김 현^{1,†}

Myongji University; ¹명지대학교

(hernkim@mju.ac.kr[†])

This work demonstrates a one-step method to immobilize Fe and Zn on N doped carbon foam (FZ/NC) via carbonization of suitable precursors. The FE-SEM images of FZ/NC confirmed the formation of foam like structure wherein small metal particles were seen embedded in a porous carbon matrix. EDS analysis and elemental mapping images of these samples showed presence of N, C, O, Zn, and Fe. FZ/NC sample prepared by calcination at 800 °C showed highest catalytic activity for oxygen evolution reaction and required overpotential of only 232 mV to attain the benchmark current density of 10 mA cm⁻². The results from different characterizations and electrochemical analysis indicate that the high activity of Fe,Zn/NC originates from its high surface area and low charge transfer resistance